7th NOAA TBPG Workshop
College Park, MD
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Roundup Presentation

CTB

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CTB Overview

Mission: Advancing operational climate monitoring, models, and prediction capabilities at subseasonal to seasonal and interannual timescales.

- Accelerate **research-to-operations (R20)** transition to improve NCEP operational climate prediction
- Provide **operations-to-research (O2R)** support to the climate research community with access to operational models, forecast tools and datasets

Climate Test Bed Priorities:

1. Multi-model ensembles
2. Climate Forecast System (CFS) improvements
3. Climate forecast tools and products
4. Climate monitoring tools and products (new)

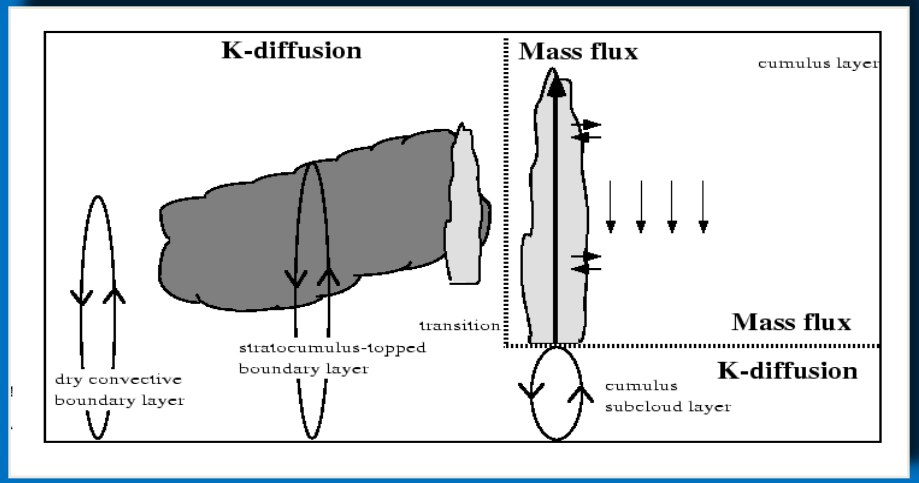
New website: http://www.nws.noaa.gov/ost/CTB

CTB FY15 Highlights

- NMME (FY11-14): Transitioned to operation in FY15
- Nine (9) ongoing CTB testing projects (FY14-16)
- CTB Science Meeting in Nov. 2015
- Multi-model ensemble sub-seasonal forecast protocol
- CTB Science Plan and Implementation Strategy
- Led MAPP Climate Model Development Task Force, working with NCEP/EMC on CFSv3 planning
- Led the development of the Drought Research-to-Capability Synthesis Report as part of MAPP Drought Task Force

CTB FY15 Highlights(continued)

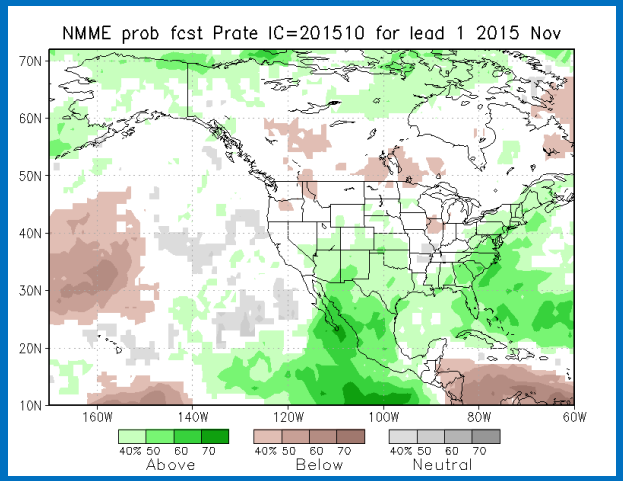
- Incorporated a scale-aware PDF-based turbulence closure model (SHOC) in the current version of GFS and NEMS
- Implementing the Arakawa-Wu Unified Parameterization of convection and cloud in the GFS (Krueger, Randal, Moorthi et al.)



Tested moist EDMF scheme to improve representations of stratocumulus and microphysics in GFS (Bretherton, Han, Sun, et al.)

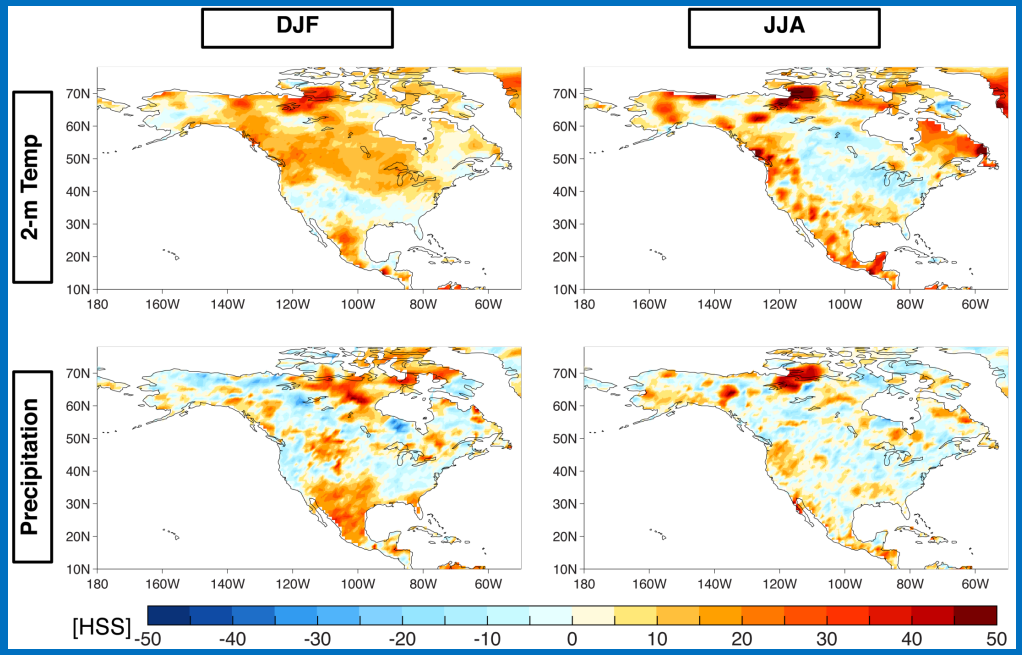
CTB FY15 Highlights (continued)

Developed NMME-based probability seasonal forecast products (van den Dool, et al.)



Subseasonal NMME Forecasts: Skill, Predictability, and Multi-model Combinations (Delsole et al)

Weeks 3+4 Heidke Skill Score from combined effects of ENSO+MJO+Trend



Developed new forecast products for weeks 3-4 (Johnson, et al.)

CTB FY15 Transition Metrics

- 1 transition to operation : NMME Seasonal Forecast System (FY11-14): Transitioned to operation in FY15

- 9 ongoing testing projects: TRL 5 to 7
  - Post-project review and the decision of NCEP management at the end of FY16

CTB FY16 Activities

- Complete the 9 funded projects
  - 5 projects focusing on improving NCEP GFS/CFS
  - 4 projects focusing on improving subseasonal to seasonal predictions
- Post-project review in Q4FY16
- Start new testing projects in FY16
  1) Test the performance of modeling components, schemes or methodologies (data assimilation for Earth system components; sea ice)
  2) Test experimental prediction methodologies and products
  3) Conduct the NMME sub-seasonal forecast experiment to test a multi-model system for sub-seasonal climate prediction

CTB Best Practices/Lessons Learned

- Involvement of NCEP scientists is critical
- A transition plan with evaluation metrics, transition target date and NCEP commitment is important;
- Success of R2O transition includes both final transition (TRL 7 to 9) and progress in testing (TRL 5 to7 or 6 to 8).
- Effective CTB modeling projects need **O2R infrastructure support** to the external collaborators, e.g., model documentation, model code/scripts, data during the development phase